

PERSONAL *weekly* **COMPUTER**

50p April 21, 1984 No 58

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GAMES SPECIAL: Reviews
for Commodore 64, BBC
and Spectrum

Keith Bowden evaluates the attempts five companies have made to improve the Basic on the 64.

Five better Basics

It's a mystery of micro marketing that a company can build a computer with superb sound and graphics capabilities, then handicap it with an outdated Basic which makes using those features difficult and time consuming. But that is precisely what Commodore did with the 64. In a sense the 64 is almost the perfect micro for the machine code programmer, but that is little consolation to the computer novice, or even someone adept at Basic.

So it was almost inevitable that sooner or later the software companies would attempt to remedy the problem by producing extensions to the built-in Basic. Now, however, you have a choice of about a dozen packages, each offering a variety of commands and extra features.

The choice is further complicated because where there are similar commands, many are implemented in a different way. Some packages also offer what are called 'toolkit' commands. These make it easier to write and debug the program but have no effect when it is actually run.

Of the packages considered here Simons Basic from Commodore has toolkit options, but we will consider only the new Basic commands.

The new commands should generally fall into three main areas: graphics, including high-resolution and sprites; sound; and miscellaneous bits and pieces which improve the structure of your programs.

There are other considerations too. Perhaps foremost among these is the question of format. A cartridge is definite-

ly preferable since there is little point in buying these supplementary commands and never using them because it takes five minutes to load them from tape, followed by several more minutes before your program is loaded. A cartridge gives you access to the new commands as soon as you switch on the machine.

The drawback is likely to be the comparatively high cost: both cartridge products looked at here, Simons Basic and BC Basic, cost £50. The best compromise is probably to go for disks which fall midway between tape and cartridge in cost and speed. However, this is obviously only possible for those who have invested the £200 required for the disk drive.

One point that applies to all products is compatibility. If you have bought toolkit programs, or have interfaces with software drivers, you may find that the Basic extension package will clash with these in memory. Where possible get a demonstration of your choices running together or accept the possibility that you may run into problems.

Graphics

All the packages support high-resolution graphics but there are some odd omissions. Graphix 64 has no CIRCLE command—a fault shared by BC Basic which is also lacking a FILL option. CIRCLE is fairly easy to simulate using DRAW commands but packages claiming to add useful extras to Basic have no excuse for leaving it out.

If you need some extras, Simons Basic

and Graphix 64 allow split screens for different modes; UltraBasic has a turtle graphics option; and BC Basic offers a command to synchronise screen changes to eliminate screen flicker.

One of the most important of the 64's graphics modes is multicolour and any Basic extension should support it properly. MultiColour mode offers greatly improved colour resolution at the expense of halving pixel resolution, but this trade-off is worth it in many cases because of a variety of effects it makes possible. Unfortunately, Graphix 64 and Turbo do not support it at all while UltraBasic allows its use but reduces vertical resolution as well, which is a little bizarre. Of the rest only BC Basic allows full exploitation of the many powerful effects in multicolour mode.

Sprite handling is another important area and it is covered pretty thoroughly by all of the packages except Graphix 64 which has no sprite commands.

One extremely powerful extra offered by BC Basic allows sprites to be interrupt driven. This means you can set a sprite moving in a certain direction at a given speed and it will carry out the instruction, even if the program is stopped. Obviously this makes games writing much easier and can produce effects otherwise possible only in machine code.

Sound

Using sound on the 64 can be even more complicated than graphics. The Sound Interface Device (SID) is the most power-

```
10 MODE3,0:CLG
20 DRAW50,25TO100,25
30 GETA#:IFA#=""THEN$0
40 MODE0
```

```
10 POKE52,32:POKE56,32:CLR
20 PRINTCHR$(147):SC=B192
30 POKE53272,PEEK(53272)ORB
40 POKE53265,PEEK(53265)OR32
49 REM *** CLEAR HI-RES SCREEN ***
50 FORI=SCTOSC+7999
60 POKEI,0:NEXT
69 REM *** DRAW LINE ***
70 Y=25:FORX=50TO100
80 GOSUB1000
90 NEXT
99 REM *** RETURN TO TEXT MODE ***
100 GETA#:IFA#=""THEN100
110 POKE53265,PEEK(53265)AND223
120 POKE53272,PEEK(53272)AND247
130 END
1000 CH=INT(X/8)
1010 RO=INT(Y/8)
1020 LN=YAND7
1030 BY=SC+RO*320+B*CH+LN
1040 BI=7-(XAND7)
1050 POKEBY,PEEK(BY)OR(2*B1)
1060 RETURN
```

```
10 X=20:Y=12
20 PRINTATX,Y;"*"
30 X=X+JOYX(2)
40 Y=Y+JOYX(2)
50 GOTO20
```

```
10 SC=1024:CO=54272
20 X=20:Y=12
30 L=SC+X+Y*40
40 POKEL,42:POKEL+CO,1
50 GOSUB100
60 GOTO30
99 REM *** READ JOYSTICK PORT 2 ***
100 JO=ABS(PEEK(56464))-127)
110 IFJO=1THENY=Y-1
120 IFJO=2THENY=Y+1
130 IFJO=4THENX=X-1
140 IFJO=8THENX=X+1
150 RETURN
```

These sample programs demonstrate the power and convenience of the Basic extensions over the built-in dialect. At top left, a BC Basic program to draw a line in high resolution, and below it a program to achieve the same effect in Commodore Basic. Left, programs to move an object around the screen under joystick control.

ful sound synthesiser in any home computer and from the built-in Basic it is a tortuous process to create sound and musical effects.

With the exception of Graphix 64, all the packages offer some sound commands though many have so many parameters that they are still some way short of making sound truly easy to use. Most make no attempt to support every feature of SID, except BC Basic which allows you to use such things as ring modulation and filtering.

Additional commands

BC Basic supports structured programming with IF... THEN... ELSE and REPEAT... UNTIL, and also allows named PROCEDURES. Simons Basic has a large number of structured commands but both reduce to the two mentioned and many are implemented in a very non-standard manner.

These two also offer extra or improved string handling functions and straightforward conversion between decimal, binary and hex, as well as giving new Basic commands for reading and controlling lightpens, joysticks and paddles — a feature shared by UltraBasic.

Summary

With the exception of Graphix 64 which is confined to high-resolution commands, all the packages attempt to cover most of the areas of programming neglected by the 64's built-in Basic.

While Simons Basic is undoubtedly the most comprehensive of the packages, it has been criticised as over-ambitious. It is doubtful whether anyone would make real use of 114 new commands (and Commodore has a supplement in the pipeline which will take it up to over 200 new commands).

BC Basic is not far behind but it is a much more clearly conceived package with many commands better implemented than on Simons Basic.

UltraBasic concentrates on sound and graphics without any concession to structured programming and in the areas covered is very well done.

Turbo is rather a ragbag of extras. Repeat... Until is its only concession to structure, it has a DOKE command (to POKE two consecutive bytes) but no DEEK function; however, it is reasonable value for what it offers at £15.

For straightforward value for money, UltraBasic is the winner. However, if you can afford it, BC Basic is the best buy overall with the added convenience of being on cartridge.

PCN

Name Simons Basic Publisher Commodore UK
Tel 0753-741111 Format Cartridge/disk
Name BC Basic Publisher Kuma Computers Tel
07357-4335 Format Cartridge
Name UltraBasic Publisher Adamsoft Tel 01-788
8963 Format Cassette/disk
Name Graphix 64 Publisher Supersoft Tel 01-861
1166 Format Cassette/disk
Name Turbo Publisher Aztec Software Tel
0924-492826 Format Cassette

Hi-res sketchpad in BC Basic.

```
10 PRINT""
20 X=160:Y=100
30 PEN=1:D$="DRAW"
40 PROC HI-RES
50 PROC SPRITE
60 PROC SPRPOS
70 GETA$
80 IFA$="D" THENPEN=1:D$="DRAW"
90 IFA$="E" THENPEN=0:D$="ERASE"
100 X=X+JOYX(2):Y=Y+JOYX(2)
110 IFX<0 THENX=0
120 IFX>319 THENX=319
130 IFY<0 THENY=0
140 IFY>199 THENY=199
150 PROC DRAW
160 GOTO70
999 END
2000 DEFPROC DRAW
2010 DRAWTX,X,Y,PEN
2020 PROC SPRPOS
2030 ENDPROC
3500 DEFPROC SPRPOS
3510 SPRINKO,I
3520 SPRPOS,X+21,199-Y+48
3530 ENDPROC
4000 DEFPROC HI-RES
4010 PRINTAT2,2;"PRESS P TO SELECT PAPER COLOUR"
4020 PRINTAT4,2;"PRESS I TO SELECT INK COLOUR"
4030 PRINTAT6,2;"PRESS RETURN TO CONTINUE"
4040 P=0:I=1:PAPER:P=INKI
4050 REPEAT GETA$
4060 IFA$="P" THENP=P+1:IFP=16 THENP=0
4070 PAPER P
4080 IFA$="I" THENI=I+1:IFI=16 THENI=0
4090 INKI:PRINTAT4,2;"PRESS I TO SELECT INK COLOUR"
4100 UNTILA$=CHR$(13)
4110 CLG:MODE3,0
4120 PLOTX,Y,B
4130 HPRINTAT24,0:D$:HPRINTAT24,15;"X=" X " "
4140 HPRINTAT24,25;"Y=" Y " "
4150 ENDPROC
5000 DEFPROC SPRITE
5010 FORR=0 TO20:DEFSR13,R,0:NEXT
5020 DEFSR13,0,X00110000000000000000000000000000
5030 DEFSR13,1,X00110000000000000000000000000000
5040 DEFSR13,2,X11001100000000000000000000000000
5050 DEFSR13,3,X00110000000000000000000000000000
5060 DEFSR13,4,X00110000000000000000000000000000
5070 SPRON0,1:SPRPOINT0,13
5080 ENDPROC
```

The program above is a simple utility in BC Basic. It would be considerably longer and slower in Commodore Basic. It allows you to create high-resolution drawings using the joystick, in any colour. Other Basic extensions should be able to reproduce it with minimal conversions. NB: BC Basic has screen coordinate 0,0 at bottom left in hi-res (mode, 3,0).

Basic comparison chart

Product	Graphics	Sprites	Sound	Other	Quality	Price	Value
Simons Basic	8	6	6	5	6	£50	7
BC Basic	8	7	9	4	10	£50	8
UltraBasic	7	6	6	3	8	£20	9
Graphix 64	7	0	0	0	9	£12	6
Turbo	6	5	5	2	7	£15	8

The above chart is obviously subjective but it attempts to compare the different products in terms of the range of commands, how well the commands have been implemented and how each package rates for value.